

# Orchiflora

Volume 8, Issue 9  
June 2018

**Speaker Series:**

**June 27** – Speaker and topic to be announced

**September 26** - Roy Tokunaga, H & R, Topic to be announced

**October 24** - Winquing Penner, Hengduan Mountains Biotechnology, Topic to be announced

**Culture Class**, held in the Cedar Room, VanDusen Garden 6:30 pm – 8:30 pm. All orchid related questions are welcome – *culture class is a member's only benefit*

**June 12** – Chinese Cymbidiums - Daniel Kwok

**October 9** - Lava, leca and lessons learned: A beginners guide to growing in inorganic media and semi-hydroponics. - Jennifer Pell

**Monthly General Meetings: 4<sup>th</sup> Wednesday of each month (except July, August and December) at VanDusen Floral Hall; Doors Open 6:30 pm, meeting starts at 7 pm**

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**AOS Judging:**

Pacific Northwest Judging Centre (**PNWJC**) meets every 2<sup>nd</sup> Saturday of the month. Everyone is welcome to attend and bring their orchids for consideration by the American Orchid Society judges. This is a great opportunity to learn about the judging process and see many orchids of award quality.

**2018 Calendar**

- July 14, 2018 (Saturday): 11:30am, Victoria (Swan Lake)
- August 11, 2018 (Saturday): 11:30am, Richmond (Sea Island)
- September 28, 2018 (Friday): 1:00pm, CVIOS Show (Nanaimo)
- October 2018: 1:00pm, FVOS Show (Langley)
- November 10, 2018 (Saturday): 1:00pm, Victoria (Swan Lake)
- December 8, 2018 (Saturday): 11:30am, Richmond (Sea Island)

## *President's Message*

I'm feeling a bit nostalgic as the last two years as president wraps up this month, and I focus more on family and my baby daughter. I want to first give a huge thank you, for all the support of the executives and many volunteers I had during this period of time that made my role so enjoyable. I couldn't have done anything without your help.

Secondly I realize that it takes a small army of volunteers to keep us as a society healthy and growing. As we move forward with the year and evolve I urge you to consider joining the executive, it's a wonderful experience getting to know the others and be a part of great team and share our love of orchids with each other.

I'll try and assist where I can with the next executives and guide if asked so don't hold back joining! Thanks again for all your help, it's been wonderful getting to know you better. See you at the next meeting!

As always happy growing,  
Ryan Young

## *MINUTES of the 23 May 2018 Meeting:*

Meeting was called to order at 7:02pm and chaired by Ryan Young.

**MINUTES FROM THE LAST MEETING** – It was moved by Jennifer Pell to accept the minutes from the last meeting and seconded by Daniel Kwok. The motion was passed by the members.

**MEMBERSHIP REPORT** – We had 5 new members and guests at the meeting. A big welcome to everyone who has joined! All new members are encouraged to contact Daniel Kwok [dkwok3580@gmail.com](mailto:dkwok3580@gmail.com) if you'd like to join our Whatsapp chat group.

### **SPEAKER UPDATE:**

- June 27th: Alan Koch will most likely be unable to speak at our June meeting due to medical issues
- September 26th: Roy Tokunaga, topic TBD
- October 24th: Wenqing Perner, topic TBD
- November will be our annual potluck and auction

### **CULTURE CLASS**

- June 12th: Daniel Kwok on Chinese Cymbidiums
- October 9th: Jennifer Pell on Inorganic Media and Semi-Hydroponics

**OTHER ITEMS -**

-The next regional AOS judging will be on June 9th. If you have a plant for judging, or just want to observe the process, feel free to join at the Sea Island Community Centre in Richmond.

-Both Margaret Prat and Wayne Riggs will not be acting as show co-chairs in 2019, however both are happy to spend time passing along information.

**-The positions of President, 1st Vice President and 2nd Vice President are all being vacated. Our AGM is on June 27th and all other members of the executive are happy to remain.**

-Our Summer Sale will be taking place on August 25th. The cost of a table is \$50 and only full tables are available this year, so if you'd like to share one, find a partner. There will be sign up sheets for volunteers at the June meeting.

-Eugene Banziger will be hosting an open greenhouse this summer. The date is yet to be announced, either in late July or early September.

-Don't forget to check us out on social media! Share your love of orchids on Facebook, WhatsApp and Insta-gram.

<p><b><i>Executive and Board of Directors</i></b></p> <p>President – Ryan Young 1st Vice President – Margaret Prat 2nd Vice President - Natasha Charif Treasurer – Judy Buttress and Erik Nilsen (Co-Treasurers) Secretary – Connor Preston Directors: - Grant Rampton - Eugene Banziger - Daniel Kwok - Keith Willet - Ingrid Pike - Jennifer Pell</p>	<p><b>Contributions to the newsletter are welcome.</b></p> <p>Please send to Wayne Riggs at: <a href="mailto:wayne.riggs66@gmail.com">wayne.riggs66@gmail.com</a></p> <p><b>Article/Photo Submission deadline is the 10<sup>th</sup> of each month. Items received after this date will appear in the next newsletter.</b></p>
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***Annual General Meeting June 27 - Elections for VOS Executive and Board Positions***

- Please consider volunteering for a board or executive position. If you wish to have your name put forward send an email to Ryan Young at:  
[Ryan1young@gmail.com](mailto:Ryan1young@gmail.com)

## Social Media:

### Instagram

VOS member Conor Preston has established an Instagram account to generate public interest in growing orchids. Please visit: <https://www.instagram.com/vancouverorchidsociety/>

If you would like to post photos of your flowering orchids, please get in touch with Conor at: [conorpreston88@gmail.com](mailto:conorpreston88@gmail.com)

### WhatsApp – VOS chatroom

Daniel Kwok has in the last year couple of years established Chatrooms for VOS members to post photos of their orchids, ask questions about plant health or growing tips. It is a great forum to learn from others and to share your plant photos and growing conditions.

We would like to encourage new VOS members, and current members who have not joined the VOS chatroom, to get in touch with Daniel at: [dkwok3580@gmail.com](mailto:dkwok3580@gmail.com) (Tel: 604 805-3866) to be added.

### Facebook

You can also follow us on Facebook: <https://www.facebook.com/VancouverOrchidSociety/>

## Photos from the May 23, 2018 Monthly Meeting Show Table



Phrag Grande 'Maybrook' AM/AOS – Flower Quality  
Exhibitor: Eugene Banziger



Anguloa ruckeri – Unusual Species  
Exhibitor: Eugene Banziger



Dendrobium bellatulum – Display  
Exhibitor: Daniel Kwok



Phrag Saint Owen – Flower Quality  
Exhibitor: Wayne Riggs



Paph thaianum – Unusual Species  
Exhibitor: Lori Barrington

## Judges

Calvin Wong

Peter Zhao

Trisha Van der Star



Ponerorchis graminifolia – Display  
Exhibitor: Daniel Kwok



Epi parkinsonianum 'Sydney Mei' HCC/AOS –  
Members choice  
Exhibitor: Eugene Banziger



Pleurothallis inaequalis – Plant culture  
Exhibitor: Eugene Banziger

\*\*\*Well done everyone!

## AOS Western Canada Judging Center - Judging Results – May 12, 2018

At the AOS Western Canada Judging Center's judging at the Orchid Society of Alberta Show on May 12, 2018, the following AOS awards were granted:

(please note that all awards are considered provisional until paperwork and payment is processed by AOS and published in Orchid Plus)

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Phalaenopsis LD's Bear Queen 'Frostbite' AM/AOS 81pts. (Phalaenopsis bellina x Phalaenopsis Dragon Tree Eagle)

Exhibitor: Kingfisher Orchids



Acineta superba 'Eugene Banziger' CCM/AOS 84pts

Exhibitor: Eugene Banziger



Bulbophyllum speciosum 'Kittiwake' AM/AOS 81pts

Exhibitor: Leda Bower

### Judges in attendance:

Poul Hansen  
Abu Salleh  
Debb Ward  
Calvin Wong  
Ingrid Ostrander  
John Taylor (Student)



Phalaenopsis (LD's Bear King x Dragon Tree Eagle) 'Longster' HCC/AOS 78pts

Exhibitor: Kingfisher Orchids

### Judges in attendance:

Poul Hansen  
Abu Salleh  
Debb Ward  
Calvin Wong



Pleurothallis inaequalis 'Eugene Banziger' CCM/AOS  
80pts  
Exhibitor: Eugene Banziger



**Photographer:**  
Judith Higham

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## Some photos from the yard of Carla and Bill Bischoff

Carla and Bill are long time members of the VOS. They have a beautiful yard and greenhouse in Surrey, BC.

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Dactylorhiza foliosa / Madeira



Cypripedium Regina



Dactylorhiza foliosa / Madeira



Dactylorhiza foliosa / Madeira

Cypripedium Regina

Cypripedium parviflorum – right hand side of photo –  
about 2 weeks away from blooming

***HAVE A GREAT SUMMER AND GROWING SEASON –  
SEE YOU IN SEPTEMBER***

***Appended Article: The following article is reproduced from the AOS June 2018 edition of Orchids magazine.***

***The Cypripediums of the United States and Canada. Part 1: The parviflorum complex.***

***Since it is cypripedium blooming season I thought this article might be of interest.***

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# The Cypripediums of the United States and Canada

Part 1: The *parviflorum* complex

BY RONALD A. COLEMAN

PHOTOGRAPHS BY RONALD A. COLEMAN

UNLESS NOTED OTHERWISE



I have been hunting the wild orchid for over 45 years. Although orchid hunters in the Southwest see mostly little green things, the genus *Cypripedium* has been especially intriguing. Starting with *Cypripedium montanum* in Yosemite National Park in the early 1970s, I sought our lady's slippers in much of the United States and Canada. The 2017 Native Orchid Conference meeting near Winnipeg, Manitoba, provided the opportunity to finally see and photograph *Cypripedium candidum*, a species that had eluded me for many years. After returning from the conference, I realized the experiences and photographs from decades hunting *Cypripedium* were worth sharing. This overview of the *Cypripedium* of the United States and Canada is a compendium of my field experiences with the flowers, and data from many hours poring over herbarium specimens.

The orchid subfamily Cypridioideae contains five genera of slipper orchids. *Paphiopedilum* and *Phragmipedium* are well known to hobbyist orchid growers. Two of the others, *Selenipedium* and *Mexipedium*, are lesser-known New World genera. The fifth genus, *Cypripedium* Linnaeus, contains about 50 species (Pridgeon, et al. 1997) of mostly Northern Hemisphere taxa, including four members of what Cribb (1997) calls Section *Irapeana*, which grow in Mexico and Central America. This paper focuses on the 12 species of *Cypripedium* native to the United States and Canada.

Cypripediums are deciduous from perennial rhizomes. Our plants vary in height, and in number and position of leaves. For our 12 species, blooming plants range from less than 1 ¼ inches to over 51 inches (3–130 cm) tall. The number of leaves varies from two to 10 or more. The leaves are sometimes basal, sometimes midstem and opposite, but more often alternating or subopposite along the stem. The flowers are distinguished by a lip presented as a slipper-shaped pouch that aids in pollination. The pouch is the largest and usually most colorful part of the flower. The pouch does not contain any food for the pollinator, but produces an often-pleasant aroma to induce an insect into entering in search of food. As with other orchids the pistil and stamens are fused into a single structure called the column. Cypripediums have two fertile stamens, one on each side of the column. A third, but sterile, stamen called the staminode is prominent above the pouch opening with a color that often contrasts with the pouch, lip and petals. Except for



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- [1] *Cypripedium kentuckiense* with green sepals and petals and pale ivory pouch. Photograph by Gary Spicer.
- [2] Roadside habitat of *Cypripedium candidum* where mowing maintains prairie-like conditions in Manitoba, Canada.
- [3] *Cypripedium candidum* plant with two flowers, accenting the pure white pouch, characteristic of the species, and the small notch on the forward opening. Photographed in Manitoba, Canada.
- [4] *Cypripedium candidum* plant structure showing the leaves partially clasping the stem even at maturity.

*Cypripedium arietinum* the two lateral sepals merge into a structure called the synsepal, which lies behind the pouch below the dorsal sepal. On several species the synsepal has a bifurcate apex which hints at its origin from two sepals. Our cypripediums are widely distributed in the United States and Canada. Subsequent references to *Cypripedium* refer to our 12 species, and not the genus as a whole.

Plant and flower descriptions below, unless otherwise noted, document my field observations and herbarium research. The nomenclature and synonymy for most taxa are from the referenced literature. Details of distributions rely significantly on Sheviak (2002) and the North American Orchid Conservation Center (2017). Common names have been gleaned from the publications listed in the reference section. I have not been able to see all mentioned color forms of all the species personally, but have been able to borrow images of several unusual color forms from multiple orchid photographers to complement the set for this paper. Such images are credited to the photographers.

Divided into three parts, this first part discusses the *Cypripedium parviflorum* complex which includes *Cypripedium candidum*, *Cypripedium kentuckiense*, *Cypripedium montanum*, the various forms of *Cypripedium parviflorum* and the two natural hybrids within the complex: *Cypripedium* × *andrewsii* and *Cypripedium* × *columbianum*. Part II will discuss the familiar *Cypripedium acaule*, *Cypripedium reginae*, *Cypripedium passerinum*, and the natural hybrid of *Cyp. reginae* and *Cyp. parviflorum* and Part III will discuss the remaining six species and one natural hybrid.

***Cypripedium candidum* Muhl. ex Willd., Sp. Pl. 4: 142 (1805)**

Synonyms: *Calceolus candidus* (Muhl. ex Willd.) Nieuwl., Amer. Midl. Naturalist 3: 117 (1913).

The common names for *Cyp. candidum* include the white lady's slipper and the silver slipper due to its white pouch. Correll (1950) includes white frauenschuh among its common names. *Cypripedium candidum* is relatively small, with blooming plants usually under 16 inches (40 cm). Three to five leaves clasp the stem, pointing upward without fully spreading. Multiple stems from the same rhizome eventually produce clumps of blooming plants. Usually plants bear only one flower, but two flowers are not uncommon. The sepals and petals are yellowish green with brown striping. The



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- [5] A *Cypripedium candidum* flower with more golden sepals and petals.
- [6] Habitat of *Cypripedium kentuckiense* in Tennessee.
- [7] Plant of *Cypripedium kentuckiense* showing spreading ovate leaves.
- [8] *Cypripedium kentuckiense* with light brown sepals and petals and ivory pouch.
- [9] Plants of *Cypripedium montanum* often carry two flowers.
- [10] *Cypripedium montanum* pouch with potential pollinator inside. Also visible are the red stripes on the back interior of the pouch.
- [11] The yellow staminode with red spotting on *Cypripedium montanum* provides a bright contrast to the white pouch and dark sepals and petals.
- [12] *Cypripedium montanum* forma *praetertinctum* has clear light green sepals and petals and the lip is without purple markings, and the staminode without red spots. Photo by Charles Sheviak from British Columbia.

petals are usually twisted, but sometimes are relatively flat. The pouch is white with faint veining. The opening to the pouch is rounded except for a small acute notch at its forward edge. The yellow staminode covered with red dots provides a bright contrast to the white of the pouch. Homoya (1993) says the flowers have “a delicate fragrance.”

*Cypripedium candidum* grows in the northeastern quarter of United States, from Kansas to New York as well as a disjunct site in Alabama. It barely extends into Canadian provinces of Manitoba, Ontario, and Saskatchewan. *Cypripedium candidum* prefers the bright light of wet prairies such as those home to *Platanthera leucophaea*, although *P. leucophaea* blooms later in the year. *Cypripedium candidum* is usually shorter than surrounding prairie plants, making it hard to see. It is sometimes found in roadside ditches where the habitat mimics that of the meadows. The ditches are often mowed regularly allowing the *Cyp. candidum* plants to stand out a little more from their surroundings than they do in the meadows. Mowing has the added benefit of controlling larger invasive plants that could outcompete *Cyp. candidum*. Blooming extends from April to June.

***Cypripedium kentuckiense* C.F.Reed, Phytologia 48: 426 (1981)**

Synonyms: *Cypripedium daultonii* nom. nud.

The often-seen common names for *Cypripedium kentuckiense* are Kentucky lady’s slipper and the ivory lady’s slipper, in reference to the state for which it is named and the color of its pouch. It is sometimes referred to as the southern lady’s slipper because of its distribution. Sheviak (2002) includes the common name purloined slipper. *Cypripedium kentuckiense* is the largest-flowered of our lady’s slippers with a natural spread often greater than 4 ¼ inches (12 cm). Just the flower alone can be larger than some entire blooming plants of *Cyp. fasciculatum*. Flowering plants approach more than a yard (1 m) in height. Only *Cypripedium californicum* is taller, but its flowers are smaller. Flowering plants have three to six alternate ovate leaves along the stem and most bear only one flower. The flowers look like a supersized *Cypripedium parviflorum*. However the color, size and shape of the pouch make it unique. The pouch is ivory to pale yellow and the forward end of the pouch appears blunted. The sepals and petals are green but almost totally covered with brown



to deep reddish purple (madder) stripes, or dots aligned to look like stripes. The petals usually have multiple twists. Weldy et al. (1996), determined that dorsal sepal width and the pouch’s orifice length are sufficient to separate *Cyp. kentuckiense* from *Cyp. parviflorum* var. *pubescens*. The dorsal sepal width of *Cyp. kentuckiense* is always greater than 1 ¼ inches (3.5 cm) and that of *Cyp. parviflorum* var. *pubescens* is always less than 1.1 inches (2.9 cm). The orifice length of *Cyp. kentuckiense* is always greater than 1.2 inches (3.0 cm) and that of *Cyp. parviflorum* var. *pubescens* is always less than a ½ inch (1.3 cm). Brown (2004) reports a color form from Arkansas with pure green sepals and petals, and a white pouch.

*Cypripedium kentuckiense* grows in the southern states of Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi,



CHARLES SHEVIAK

Oklahoma, Tennessee, Texas and Virginia. Weldy et al. (1996) report that Arkansas has more plants of this species than any other state. They also discuss a population of *Cyp. kentuckiense* from Virginia that has characteristics suggesting both *Cyp. kentuckiense* and *Cyp. parviflorum* but analysis confirmed that those plants were *Cyp. kentuckiense*. It favors habitats ranging from mesic deciduous forests to seeps and stream bottoms. The blooming season is from April to June.

***Cypripedium montanum* Douglas ex Lindley, Genera and Species of Orchidaceous Plants 528 (1840)**

Synonyms: *Cypripedium occidentale* Watson, Proceedings American Academy of Arts and Sciences 11: 147 (1876).

Because of its typical habitat, this species has the common name of mountain lady's slipper. *Cypripedium montanum* blooms on plants ranging between 10 inches and nearly 24 inches (25–70 cm) tall. Mature plants have five or six alternating, slightly fuzzy, leaves. The plants sometimes bear three flowers, but most often have one or two. The largest flowers have a natural spread of approximately 4 × 4 inches (10 × 10 cm). The petals are twisted and drooping. The white pouch is veined with purple, with purple lines inside, and occasionally with a purple rim around the opening. The typical pouch measures about 0.6 × 1.2 inches (1.6 × 3.0 cm), with an opening about 0.4 × 0.5 inches (1.1 × 1.3 cm). The color of the sepals and petals varies from an intense brown to a light tan. The petals are slightly hairy near the pouch, with multiple twists. The backs of both sepals and petals are covered with fine hairs. The staminode is bright yellow with red spots. The flowers have a sweet, pleasant fragrance. Sheviak (1990) named a rare anthocyanin-free color form from Canada *Cyp. montanum* f. *praetertinctum*, on which the sepals and petals are a clear light green, the pouch without purple markings and the staminode without red spots.

*Cypripedium montanum* grows in California, Montana, Idaho, Wyoming, Oregon, Washington, Alaska, Alberta and British Columbia. I primarily think of this as a northern California species because I have spent 20 years studying it there. However Catling (1983a) observes that the range of *Cyp. montanum* in Canada is greater than its range in the United States. *Cypripedium montanum* has adapted to multiple montane habitats below about 7,000 feet (2,140 m). Often it is found near a stream or on the edge



of a hillside seep. *Cornus stolonifera*, the creek dogwood, is a common companion plant. *Cypripedium montanum* also grows in relatively dry conditions on hillsides in mixed and coniferous forest, under oaks, firs and madrones. The blooming period of *Cyp. montanum* varies with elevation. Blooming begins in late March in coastal California, and continues until early July at the northern limits of its range.

***Cypripedium parviflorum* Salisbury Trans. Linn. Soc. London 1: 77 (1791)**

*Cypripedium parviflorum* is the most widespread and most confusing of our lady's slippers. It is unmistakable due to its yellow pouch. However extreme variation of *Cyp. parviflorum* across its range has led to confusing nomenclature and a plethora of synonyms and varieties since Salisbury described it in 1791. The literature contains names such as *Cypripedium hirsutum*, *Cypripedium flavescens*, *Cypripedium pubescens* and *Cypripedium veganum*. Of these, three were eventually demonstrated to be synonyms; one is now treated as a variety. Correll (1938) considered the North American yellow lady's slippers conspecific with the European *Cypripedium calceolus* and his approach was followed by many, including Case (1964), Luer (1975), and Gupton and Swope (1986), for the next 40-plus years. Atwood (1985) recognized that the yellow lady's slippers in North America differed from the European ones at the specific level. Atwood based his decision on differences in the staminode, which in *Cyp. calceolus* is obovate (widest near the middle), and in *Cyp. parviflorum* is V-shaped (widest at the base and tapering uniformly to the apex). Atwood called the large-flowered yellow



[13–14] European *Cypripedium calceolus* flower showing remarkable similarities to American *Cypripedium parviflorum* except for the staminode. Photographed at Gait Burrows in Lancashire England by Chris Cater.

[15] Habitat and plant structure of *Cypripedium parviflorum* var. *parviflorum* in Georgia; inset: The smaller and lighter pouch of *Cypripedium parviflorum* var. *parviflorum* when compared to *Cypripedium parviflorum* var. *pubescens*.

[16] The habitat and plant structure of *Cypripedium parviflorum* var. *pubescens* in New Mexico.

[17] The relatively larger yellow pouch of *Cypripedium parviflorum* var. *pubescens*.

[18] *Cypripedium parviflorum* var. *pubescens* often has dark brown sepals and petals similar to *Cypripedium parviflorum* var. *makasin* but the flower is much larger.

lady's slippers *Cypripedium pubescens*. Sheviak (1993, 1994, 1995, 2010) updated the treatment of what he called the *Cypripedium parviflorum* complex. He recognizes a single yellow-lipped species in the United States and Canada with four varieties: *Cyp. parviflorum* var. *parviflorum*, *Cyp. parviflorum* var. *pubescens*, *Cyp. parviflorum* var. *makasin* and *Cyp. parviflorum* var. *exiliens*. Sheviak (1995) considers *Cyp. parviflorum* var. *planipetalum*, a varietal name often seen in the literature, as synonymous with *Cyp. parviflorum* var. *pubescens*. Sheviak's treatment is the basis for the following discussion.

Notwithstanding the four varieties, even an experienced orchid searcher can be challenged to identify which yellow lady's slipper is being observed. Size of the plant, size of the lip, color of the sepals and petals, size and shape of the petals, and twisting of the petals vary from region to region, and even within colonies. Sheviak (1995) believes some factors in the variation depend on soil type and exposure to sun. Plants in the open have ascending narrow leaves while those in shadier conditions have leaves that are spreading and broader. Knight (1906) reported that plants referable to *Cyp. parviflorum* var. *parviflorum* were more robust to the point of resembling *Cyp. parviflorum* var. *pubescens* when grown in richer more shaded habitats. Likewise plants looking like *Cyp. parviflorum* var. *pubescens* grew to resemble *Cyp. parviflorum* var. *parviflorum* when grown in a sunnier, harsher environment. All varieties of *Cyp. parviflorum* share the common name yellow lady's slipper.

Sheviak (2002) helped distinguish among the varieties by publishing a key to the three then known. Sheviak's key is adapted here to include *Cyp. parviflorum* var. *exiliens*.

Key to the Varieties of *Cypripedium parviflorum*

1a. Uppermost entirely tubular bract glabrous or with very few hairs

2a. flowers small; pouch 15–29 mm; sepals and petals usually suffused with dark reddish brown or madder, or spotted and blotched; scent intense, sweet var. *makasin*

2b. flowers small; pouch 16–26 mm; sepals and petals dull green tan with small clusters of rust colored spots; scent intense, sweet var. *exiliens*

1b. Uppermost entirely tubular bract densely to conspicuously silvery-pubescent

3a. flowers large to small, pouch 20–



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54 mm; sepals unmarked to commonly spotted, striped, and reticulately marked with reddish brown or madder, rarely extensively blotched; scent moderate to faint, rose or musty var. *pubescens*

3b. flowers small, pouch 22–34 mm; sepals and petals densely and minutely spotted with dark reddish brown or madder and appearing uniformly dark (rarely coarsely spotted and blotched); scent moderate to faint, rose or musty var. *parviflorum*

***Cypripedium parviflorum* Salisbury var. *parviflorum* Trans. Linn. Soc. London 1: 77 (1791).**

Synonyms: *Cypripedium luteum* Aiton ex Raf., Med. Fl. 1: 140 (1828); *Cypripedium bifidum* Raf., Atlantic J. 1: 178 (1833); *Cypripedium parviflorum* f. *albolabium* Magrath & J.L.Norman, Sida 13: 372 (1989).

*Cypripedium parviflorum* var. *parviflorum* is called the small yellow lady's slipper because it is smaller than *Cypripedium parviflorum* var. *pubescens*. These are medium-sized plants, usually between 4 and 20 inches (10–50 cm) with three to five leaves. On *Cyp. parviflorum* var. *parviflorum* the uppermost entirely tubular bract is densely to conspicuously silvery-pubescent. The sepals and twisted petals have a light green base color, but often appear light brown to dark brown due to being mostly covered with closely spaced brown dots. The spacing between dots increases near the base of the sepals and petals, clearly revealing individual dots. The yellow pouch is usually between 0.8 and 1.4 inch (20–35 mm). The flowers have a sweet rose-like fragrance. Summers (1996) reports an albino form of *Cyp. parviflorum* var. *parviflorum* with a white pouch from Missouri.

Prior to Sheviak's work, distributions for *Cyp. parviflorum* var. *parviflorum* encountered in the literature showed a far greater range than we now ascribe to it. Based on our current understanding *Cyp. parviflorum* var. *parviflorum* is concentrated in the Mid-Atlantic states. It is not known from Canada. It grows from New York south to Georgia, and westward to Nebraska, Oklahoma and Kansas. *Cypripedium parviflorum* var. *parviflorum* grows in mesic to dry deciduous forests and blooms from April to June.

***Cypripedium parviflorum* Salisbury var. *pubescens* (Willdenow) Knight, Rhodora 8: 93 (1906)**

Basionym: *Cypripedium pubescens* Willdenow, Hortus Berolinensis 1: pl. 13 (1804).

Synonyms: *Cypripedium flavescens* A.



P. de Candolle, Les Liliacees I: pl. 20 (1802); *Cypripedium hirsutum* Miller, Mem. Torrey Club 5:121 (1894); *Cypripedium veganum* Cockerell & Barker, Proceedings of the Biological Society of Washington. 4:178 (1901); *Cypripedium parviflorum* var. *planipetalum* Fernald, Rhodora 28:168 (1926); *Cypripedium calceolus* Linnaeus var. *pubescens* (Willdenow) Correll, Botanical Museum Leaflets 7:14 (1938); *Cypripedium calceolus* Linnaeus var. *planipetalum* (Fernald) Victorin & J. Rousseau, Contributions de l'institut Botanique de l'université de Montreal 36: 68 (1940).

Common names for *Cyp. parviflorum* var. *pubescens* include the yellow lady's slipper, large yellow lady's slipper, and the whippoorwill-shoe. *Cypripedium parviflorum* var. *pubescens* is the largest of our yellow varieties, with some plants reaching over 31 ½ inches (80 cm) tall with four to six ovate-lanceolate, plicate leaves. As with *Cyp. parviflorum* var. *parviflorum*, the uppermost entirely tubular bract of *Cyp. parviflorum* var. *pubescens* is densely to conspicuously silvery-pubescent. Other than that character the plant is highly variable throughout its range, with the pouch varying greatly in size, and in color from light to dark yellow. In robust specimens the pouch exceeds 2 inches (5 cm), but can be much smaller depending on growing conditions. The pouch is generally considered a darker, brighter yellow than the pouch of *Cyp. parviflorum* var. *parviflorum*, although great variety in intensity and color abound. The inside of the pouch has lines of reddish dots on the bottom back, and around the opening. Some pouches have reddish dots on the forward exterior. The sepals and petals vary from dark brown to reddish brown to greenish. The dark color in the sepals and petals is due to brown to reddish stripes over the yellowish green base color that turn to dots near the pouch. On some plants the petals may be totally untwisted with wavy margins while others will have multiple complete turns. The staminode is yellow with red dots. Summers (1996) also reports an albino form of *Cyp. parviflorum* var. *pubescens* with a white pouch from Missouri, but in a different county than the albino form of *Cyp. parviflorum* var. *parviflorum*.

This is perhaps the most widely distributed and most common *Cypripedium* species in North America. Cribb (1997) shows its distribution as extending from Newfoundland to Alaska and south to Oregon in the West. In the eastern United States along the Atlantic



coast *Cyp. parviflorum* var. *pubescens* is in every state except Florida, and extends west to Louisiana and eastern Texas. The extreme southwestern limit of its range is in Arizona. *Cypripedium parviflorum* var. *pubescens* grows in moderate shade to nearly full sun in prairies, meadows, barrens, deciduous forests, boreal forests and other coniferous forests. It favors calcareous soils. Flowering starts as early as the last week in May, and is usually over by the first week of July.

***Cypripedium parviflorum* var. *makasin* (Farw.) Sheviak, Amer. Orchid Soc. Bull. 62: 403 (1993)**

Synonyms: *Cypripedium pubescens* var. *makasin* Farw., Rep. (Annual) Michigan Acad. Sci. 18: 198 (1918); *Cypripedium parviflorum* var. *parviflorum* auct., non Salisb.

*Cypripedium parviflorum* var. *makasin* is one of the small yellow lady's slippers, usually under 16 inches (40 cm) tall with two to five leaves. It can be distinguished by the uppermost entirely tubular bract being glabrous or with very few hairs. It is noticeable because of its bright yellow pouch and dark sepals and twisted petals. The small pouch is between 0.6 and 1.2 inch (15–30 mm) long. The staminode is the same bright yellow as the pouch, with reddish dots. The sepals and petals are usually suffused with dark reddish brown or madder, though in western parts of its range may become more spotted. The petals have multiple twists. Its scent is intense and sweet.

*Cypripedium parviflorum* var. *makasin* shares much of its range with *Cyp. parviflorum* var. *pubescens*. Their ranges essentially overlap in Canada. Ames et al., (2005) refer to introgressions



[19] *Cypripedium parviflorum* var. *pubescens* with nearly completely green sepals and petals.

[20] *Cypripedium parviflorum* var. *pubescens* with red dots on exterior of pouch. The V shaped staminode distinguishes *Cypripedium parviflorum* from *Cypripedium calceolus*.

[21] Potential pollinator within pouch of *Cypripedium parviflorum* var. *pubescens*. This view shows the red dots at the entrance to the pouch, and the red dot pattern on the back inside of the pouch.

[22] *Cypripedium parviflorum* var. *pubescens* with ambush spider waiting for visiting insect.

[23] *Cypripedium parviflorum* var. *pubescens* with the synsepal clearly showing a split apex suggestive of its origin from two lateral sepals. Photographed in Manitoba.

of *Cyp. parviflorum* var. *makasin* with *Cyp. parviflorum* var. *pubescens*, which makes identifying as to variety difficult in portions of its range. In the United States, its southern limit is in the states of Illinois and Indiana. In the Rocky Mountain states its southern limit is in Utah. It gets as far west as California, but there is only one record of it there, and attempts to locate it there again have been unsuccessful (Coleman 1995). It has not yet been found in Oregon. *Cypripedium parviflorum* var. *makasin* grows in wetter habitat than *Cyp. parviflorum* var. *pubescens*. It favors moist to wet tall grass and mixed grass prairies, meadows and fens. Less often it is found in open forest lining the prairies and meadows. In portions of its range it is quite common on road rights-of-way where frequent mowing maintains habitat resembling meadows. *Cypripedium parviflorum* var. *makasin* blooms from May to August.

***Cypripedium parviflorum* var. *exiliens* Sheviak, Native Orchid Conf. J. 7(2): 5 (2010).**

Sheviak (2010) described *Cypripedium parviflorum* var. *exiliens* to recognize small-flowered yellow lady's slippers that did not fit within the bounds of *Cyp. parviflorum* var. *makasin* and *Cyp. parviflorum* var. *parviflorum*. The uppermost entirely tubular bract is glabrous or with very few hairs. The flowers are small relative to *Cyp. parviflorum* var. *pubescens*, with the pouch typically between 0.63 and 1 inch (16–26 mm). The sepals and petals are dull green-tan with small clusters of rust-colored spots rather than the uniform color or dense patterns of stripes or blotches found on the other varieties. The scent initially is intense and sweet but in older flowers becomes more rose-like.

*Cypripedium parviflorum* var. *exiliens* is primarily found in northern Alaska where it is considered rare and imperiled. Its range extends into northwestern Canada. Sheviak (2010) says plants of *Cyp. parviflorum* var. *exiliens* "occur in mesic upland sites, but sometimes are found in wetter conditions in the south of their range." It blooms from late June to August.

***Cypripedium* × *andrewsii* A.M.Fuller, Rhodora 34 No. 402 (1932)**

*Cypripedium* × *andrewsii* is the name of the natural hybrid between *Cyp. candidum* and *Cyp. parviflorum*. Flower size and color are intermediate between the two parents but vary widely. Hybrid swarms exist where the flowers appear on a continuum between the extremes of the parents as a result of backcrossing.



*Cypripedium* × *andrewsii* is most easily recognized by the color of its pouch, which is creamy to pale yellow. The sepals and petals can be pale brown or greenish brown. The hybrid can be expected wherever the two parents grow together. Different hybrid names have been applied to the natural crosses between *Cyp. candidum* and two of the varieties of *Cyp. parviflorum*. *Cypripedium* × *andrewsii* was applied to the natural hybrid between *Cyp. candidum* and *Cyp. parviflorum* var. *makasin*. Then *Cypripedium* × *favillianum* was used for the hybrid between *Cyp. candidum* and *Cyp. parviflorum* var. *pubescens*. *Cypripedium* × *landonii* was applied to a backcross involving *Cyp. parviflorum*. However Cribb (1997) points out that the hybrid name depends only on the primary species, independent of varieties or backcrossing. The correct

[24] Habitat and plant structure of *Cypripedium parviflorum* var. *makasin* growing on a roadside in Manitoba, Canada.

[25] The dark twisted petals, and bright yellow pouch of *Cypripedium parviflorum* var. *makasin*.

[26] Side view of *Cypripedium parviflorum* var. *makasin* showing red dots at entrance to pouch and translucent areas at back of pouch.

[27] Habitat and plant structure of *Cypripedium parviflorum* var. *exiliens* photographed by Chuck Sheviak from Alaska.

[28] *Cypripedium parviflorum* var. *exiliens* showing the coloring in sepals and petals is a pattern of scattered dots rather than the lines or solid fill often seen in other varieties. The V-shape of the staminode is clearly visible. Photographed in Alaska by Chuck Sheviak.

name then for any hybrid between *Cyp. candidum* and *Cyp. parviflorum* is *Cyp. × andrewsii*.

***Cypripedium × columbianum* Sheviak, American Orchid Society Bulletin 61(6) (1992)**

Sheviak (1992) used the name *Cypripedium × columbianum* for the natural hybrid between *Cyp. montanum* and *Cyp. parviflorum*. The hybrid features creamy yellow pouches and dark sepals and petals. The ranges of *Cyp. montanum* and *Cyp. parviflorum* overlap in only a few places. Therefore *Cyp. × columbianum* is found only in a few parts of southwestern Canada and northwestern United States.

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[29] Plants that were at one time called *Cypripedium parviflorum* var. *planipetalum* because of the relatively straight petals. The name is now considered synonymous with *Cypripedium parviflorum* var. *pubescens*. Photographed in Newfoundland.

[30] *Cypripedium x andrewsii* showing the pouch a pale yellow, intermediate in color between the parents *Cypripedium parviflorum* and *Cypripedium candidum*. Photographed in Manitoba, Canada.

[31] *Cypripedium x columbianum* showing the pouch intermediate in color between the parents *Cypripedium parviflorum* and *Cypripedium montanum*. Photographed in Alberta, Canada.

[32] A plant of *Cypripedium x columbianum* with two flowers, as often seen in the parent *Cypripedium montanum*.



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